

554,223

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 April 2005 (21.04.2005)

PCT

(10) International Publication Number
WO 2005/035067 A2

(51) International Patent Classification⁷: **A62D 3/00**

(21) International Application Number:
PCT/US2004/012744

(22) International Filing Date: 23 April 2004 (23.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/422,472 24 April 2003 (24.04.2003) US
60/519,868 13 November 2003 (13.11.2003) US

(71) Applicants (for all designated States except US): **STERIS INC.** [US/US]; 43425 Buesiness Park Drive, Temecula, ca 92590 (US). **THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF THE ARMY** [US/US]; SBCCOM, ECBC, APG,, MD 21010-5424 (Harford County) (US).

(72) Inventors; and
(75) Inventors/Applicants (for US only): **McVEY, Iain, F.**

[GB/US]; 1563 Lauderdale Avenue, Lakewood, OH 44107 (US). **SCHWARTZ, Lewis, I.** [US/US]; 2699 Wicklow Road, Shaker Heights, OH 44120 (US). **CENTANNI, Michael, A.** [US/US]; 7335 Beresford Avenue, Parma, OH 44130 (US). **WAGNER, George, W.** [US/US]; 55 Sparrows Way, Elkton, MD 21921 (US).

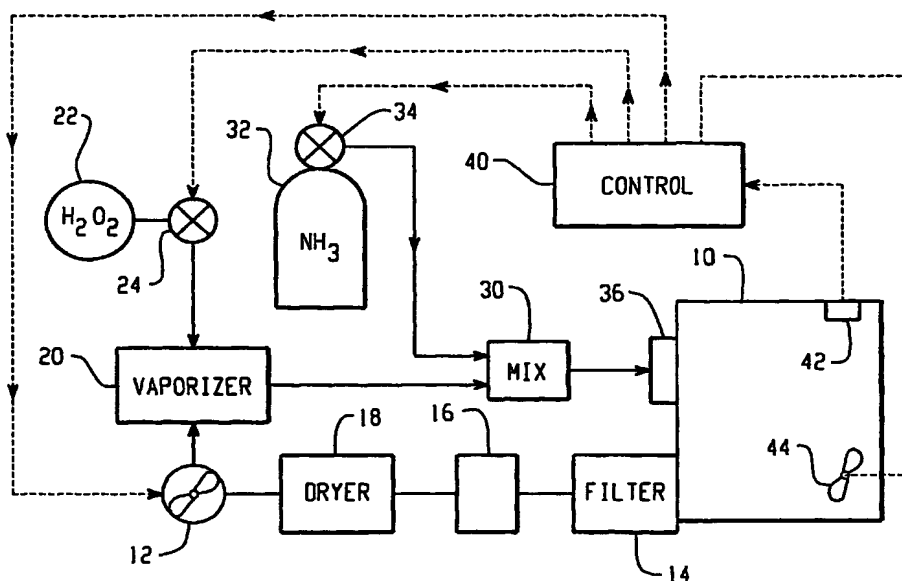
(74) Agents: **KOCOVSKY, Thomas, E., Jr.** et al.; Fay, Sharpe, Fagan, Minnich & McKee, LLP, Seventh Floor, 1100 Superior Avenue, Cleveland, OH 44114-2518 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: **ACTIVATED VAPOR TREATMENT FOR NEUTRALIZING WARFARE AGENTS**



(57) Abstract: Hydrogen peroxide is vaporized (20) and mixed (30) with ammonia gas in a ratio between 1:1 and 1:0.0001. The peroxide and ammonia vapor mixture are conveyed to a treatment area (10) to neutralize V-type, H-type, or G-type chemical agents, pathogens, biotoxins, spores, prions, and the lip-e. The ammonia provides the primary deactivating agent for G-type agents with the peroxide acting as an accelerator. The peroxide acts as the primary agent for deactivating V-type and H-type agents, pathogens, biotoxins, spores, and prions. The ammonia acts as an accelerator in at least some of these peroxide deactivation reactions.

WO 2005/035067 A2



GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.